

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method for translating between logical addresses and ports of a first network and a logical address and ports of a second network connected to the first network at an intermediate device, the method comprising the computer-implemented step of:

receiving at the intermediate device a first packet from a first device having a first address on the first network;

sending a second packet to a second device on the second network in response to receiving the first packet, the second packet including, in a source address field, data indicating a particular address of the intermediate device on the second network;

determining whether the first packet includes a first message that registers a first resource on the first device with a protocol server for a particular protocol, the protocol server available at the second device on the second network, wherein: the particular protocol does not support translated ports for requesting network resources, and the protocol server is configured to register unique names for resources provided by devices on the second network according to the particular protocol; and

if it is determined that the first packet includes the first message registering the first resource, then

determining first information in the first message for uniquely requesting the first resource, and

storing data indicating the first information in a first data structure in association with the first address,

wherein the intermediate device performs the steps of determining the first information in the first message and storing data indicating the first information in the first data structure.

1 2. (Original) A method as recited in Claim 1, further comprising the computer-
2 implemented step of:
3 receiving at the intermediate device a third packet from a third device on the second
4 network;
5 determining whether the third packet includes a second message requesting a second
6 resource according to the particular protocol; and
7 if it is determined that the third packet includes the second message requesting the
8 second resource, then
9 determining second information in the second message for uniquely
10 requesting the second resource,
11 determining whether the second information matches the first information in
12 the data structure, and
13 if the second information matches the first information, sending the second
14 message to the first device having the first address associated with the
15 first information.

1 3. (Original) A method as recited in Claim 1, wherein, if it is determined that the
2 first packet includes the first message, then inserting in the second packet a second message
3 based on the first message.

1 4. (Original) A method as recited in Claim 3, wherein the second message is the
2 same as the first message.

1 5. (Original) A method as recited in Claim 3, further comprising the computer-
2 implemented step of generating the second message by replacing, in a source address field,
3 data indicating the first address with data indicating the particular address of the intermediate
4 device on the second network.

1 6. (Original) A method as recited in Claim 1, wherein.

2 a source port field in the first packet includes data indicating a first source port;
3 said step of sending the second packet to the second device further comprises
4 storing in a second data structure uniquely associated with the first address
5 and the first source port a particular translated port, and
6 inserting data indicating the particular translated port into a source port field
7 of the second packet.

1 7. (Previously Presented) A method as recited in Claim 1, wherein the particular
2 protocol uses a well-known port for requesting the first resource.

1 8. (Original) A method as recited in Claim 1, wherein the particular protocol is a
2 network basic input and output system (NetBIOS) open protocol.

1 9. (Original) A method as recited in Claim 1, wherein the protocol server is a
2 network basic input and output system (NetBIOS) name server.

1 10. (Original) A method as recited in Claim 1, wherein the first information is a
2 resource name.

1 11. (Original) A method as recited in Claim 5, wherein the protocol server is a name
2 server that stores a resource name of the first resource in the second message in association
3 with an address based on data in the source address field of the second message.

1 12. (Original) A method as recited in Claim 1, wherein the protocol server is a name
2 server that stores data indicating a resource name of the first resource, and does not store data
3 in a source port field of the second packet in association with the resource name.

1 13. (Original) A method as recited in Claim 2, wherein the third packet includes, in a
2 destination address field, data indicating the particular address of the intermediate device.

1 14. (Original) A method as recited in Claim 2, said step of determining whether the
2 third packet includes the second message comprising determining whether a destination port
3 field in the third packet includes data indicating a well-known port associated with requesting
4 a resource according to the particular protocol.

1 15. (Original) A method as recited in Claim 1, further comprising the computer-
2 implemented steps of:
3 monitoring messages associated with registering the first resource with the protocol
4 server;
5 determining whether the first resource is not registered with the protocol server; and
6 if it is determined that the first resource is not registered with the protocol server, then
7 removing from the first data structure the data indicating the first information
8 in association the first address.

1 16. (Currently Amended) A method for translating between logical addresses and ports
2 of a first network, and a logical address and ports of a second network connected to the first
3 network at an intermediate device, the method comprising the computer-implemented steps
4 of:
5 receiving a first packet at the intermediate device from a first device not on the first
6 network,
7 sending a second packet to a second device on the first network in response to
8 receiving the first packet, the second packet including, in a destination address
9 field, data indicating a translated address;
10 determining whether the first packet includes a first message requesting a resource
11 according to a particular protocol, wherein:
12 the particular protocol does not support translated ports for requesting network
13 resources, and
14 a protocol server, which is not on the first network, is configured to register
15 unique names for resources provided by devices not on the first
16 network according to the particular protocol; and

17 if it is determined that the first packet includes the first message requesting the
18 resource, then
19 determining first information in the first message for uniquely requesting the
20 resource, and
21 before said step of sending the second packet, determining the translated
22 address on the first network based on a data item in a first data
23 structure, the data item indicating the translated address and the first
24 information,
25 wherein the intermediate device performs the steps of determining the first
26 information in the first message and determining the translated address
27 on the first network.

1 17. (Original) A method as recited in Claim 16, wherein, if it is determined that the
2 first packet includes the first message, then inserting in the second packet a second message
3 based on the first message.

1 18. (Original) A method as recited in Claim 17, wherein the second message is the
2 same as the first message.

1 19. (Original) A method as recited in Claim 16, wherein the particular protocol uses
2 a well-known port for requesting the resource.

1 20. (Previously Presented) A method as recited in Claim 16, wherein the particular
2 protocol is a network basic input and output system (NetBIOS) open protocol.

1 21. (Original) A method as recited in Claim 16, wherein the first information is a
2 resource name.

1 22. (Original) A method as recited in Claim 16, wherein the first packet includes, in a
2 destination address field, data indicating a particular address of the intermediate device.

1 23. (Original) A method as recited in Claim 16, said step of determining whether the
2 second packet includes the first message comprising determining whether a destination port
3 field in the first packet includes data indicating a well-known port associated with requesting
4 a resource according to the particular protocol.

1 24. (Previously Presented) A method as recited in Claim 16, wherein the first
2 device obtains the first information from the protocol server.

1 25. (Original) A method as recited in Claim 24, wherein the protocol server is a
2 network basic input and output system (NetBIOS) name server.

1 26. (Currently Amended) A computer-readable medium carrying one or more sequences
2 of instructions for translating between logical addresses and ports of a first network, and
3 logical addresses and ports of a second network connected to the first network at an
4 intermediate device, which instructions, when executed by one or more processors, cause the
5 one or more processors to carry out the steps of:
6 receiving at the intermediate device a first packet from a first device having a first
7 address on the first network;
8 sending a second packet to a second device on the second network in response to
9 receiving the first packet, the second packet including, in a source address
10 field, data indicating a particular address of the intermediate device on the
11 second network;
12 determining whether the first packet includes a first message that registers a first
13 resource on the first device with a protocol server for a particular protocol, the
14 protocol server available at the second device on the second network, wherein:
15 the particular protocol does not support translated ports for requesting network
16 resources, and
17 the protocol server is configured to register unique names for resources
18 provided by devices on the second network according to the particular
19 protocol; and

20 if it is determined that the first packet includes the first message registering the first
21 resource, then
22 determining first information in the first message for uniquely requesting the
23 first resource, and
24 storing data indicating the first information in a first data structure in
25 association with the first address,
26 wherein the intermediate device performs the steps of determining the first
27 information in the first message and storing data indicating the first
28 information in the first data structure.

1 27. (Currently Amended) A computer-readable medium carrying one or more sequences
2 of instructions for translating between logical addresses and ports of a first network, and
3 logical addresses and ports of a second network connected to the first network at an
4 intermediate device, which instructions, when executed by one or more processors, cause the
5 one or more processors to carry out the steps of:
6 receiving a first packet at the intermediate device from a first device not on the first
7 network,
8 sending a second packet to a second device on the first network in response to
9 receiving the first packet, the second packet including, in a destination address
10 field, data indicating a translated address;
11 determining whether the first packet includes a first message requesting a resource
12 according to a particular protocol, wherein:
13 the particular protocol does not support translated ports for requesting network
14 resources, and
15 a protocol server, which is not on the first network, is configured to register
16 unique names for resources provided by devices not on the first
17 network according to the particular protocol; and
18 if it is determined that the first packet includes the first message requesting the
19 resource, then
20 determining first information in the first message for uniquely requesting the
21 resource, and

22 before said step of sending the second packet, determining the translated
23 address on the first network based on a data item in a first data
24 structure, the data item indicating the translated address and the first
25 information,
26 wherein the intermediate device performs the steps of determining the first
27 information in the first message and determining the translated address
28 on the first network.

1 28. (Currently Amended) An apparatus comprising an intermediate networking device
2 for translating between logical addresses and ports of a first network, and logical addresses
3 and ports of a second network connected to the first network at [[an]] the intermediate
4 device, comprising:
5 means for receiving at the intermediate device a first packet from a first device having
6 a first address on the first network;
7 means for sending a second packet to a second device on the second network in
8 response to receiving the first packet, the second packet including, in a source
9 address field, data indicating a particular address of the intermediate device on
10 the second network;
11 means for determining whether the first packet includes a first message that registers
12 a first resource on the first device with a protocol server for a particular
13 protocol, the protocol server available at the second device on the second
14 network, wherein:
15 the particular protocol does not support translated ports for requesting network
16 resources, and
17 the protocol server is configured to register unique names for resources
18 provided by devices on the second network according to the particular
19 protocol;
20 means for determining first information in the first message for uniquely requesting
21 the first resource, if it is determined that the first packet includes the first
22 message, and

means for storing data indicating the first information in a first data structure in association with the first address, if it is determined that the first packet includes the first message.

29. (Currently Amended) An apparatus comprising an intermediate networking device for translating between logical addresses and ports of a first network, and logical addresses and ports of a second network connected to the first network through the apparatus the intermediate device, comprising:

- a first network interface that is coupled to the first network for sending and receiving messages thereon;
- a second network interface that is coupled to the second network for sending and receiving messages thereon;
- a processor;
- one or more stored sequences of instructions which, when executed by the processor, cause the processor to carry out the steps of:
 - receiving at the intermediate device a first packet from a first device having a first address on the first network;
 - sending a second packet to a second device on the second network in response to receiving the first packet, the second packet including, in a source address field, data indicating a particular address of the intermediate device on the second network;
 - determining whether the first packet includes a first message that registers a first resource on the first device with a protocol server for a particular protocol, the protocol server available at the second device on the second network, wherein:
 - the particular protocol does not support translated ports for requesting network resources, and
 - the protocol server is configured to register unique names for resources provided by devices on the second network according to the particular protocol; and

27 if it is determined that the first packet includes the first message registering
28 the first resource, then
29 determining first information in the first message for uniquely
30 requesting the first resource, and
31 storing data indicating the first information in a first data structure in
32 association with the first address.

1 30. (Previously Presented) An apparatus as recited in Claim 28, further
2 comprising:
3 means for receiving at the intermediate device a third packet from a third device on
4 the second network;
5 means for determining whether the third packet includes a second message requesting
6 a second resource according to the particular protocol;
7 means for determining second information in the second message for uniquely
8 requesting the second resource, if it is determined that the third packet
9 includes the second message requesting the second resource;
10 means for determining whether the second information matches the first information
11 in the data structure if it is determined that the third packet includes the
12 second message requesting the second resource; and
13 means for sending the second message to the first device having the first address
14 associated with the first information, if it is determined that the third packet
15 includes the second message requesting the second resource and if the second
16 information matches the first information.

1 31. (Previously Presented) An apparatus as recited in Claim 28, wherein:
2 a source port field in the first packet includes data indicating a first source port; and
3 the means for sending the second packet to the second device further comprises:
4 means for storing in a second data structure uniquely associated with the first
5 address and the first source port a particular translated port, and
6 means for inserting data indicating the particular translated port into a source
7 port field of the second packet.

1 32. (Previously Presented) An apparatus as recited in Claim 28, wherein the
2 particular protocol is a network basic input and output system (NetBIOS) open protocol.

1 33. (Previously Presented) An apparatus as recited in Claim 28, further
2 comprising:
3 means for inserting in the second packet a second message based on the first message,
4 if it is determined that the first packet includes the first message; and
5 means for generating the second message by replacing, in a source address field, data
6 indicating the first address with data indicating the particular address of the
7 intermediate device on the second network, wherein the protocol server is a
8 name server that stores a resource name of the first resource in the second
9 message in association with an address based on data in the source address
10 field of the second message.

1 34. (Previously Presented) An apparatus as recited in Claim 28, further
2 comprising:
3 means for monitoring messages associated with registering the first resource with the
4 protocol server;
5 means for determining whether the first resource is not registered with the protocol
6 server; and
7 means for removing from the first data structure the data indicating the first
8 information in association the first address, if it is determined that the first
9 resource is not registered with the protocol server.

1 35. (Previously Presented) An apparatus as recited in Claim 29, wherein the one or
2 more stored sequences of instructions further comprise instructions which, when executed by
3 the processor, cause the processor to carry out the steps of:
4 receiving at the intermediate device a third packet from a third device on the second
5 network;

6 determining whether the third packet includes a second message requesting a second
7 resource according to the particular protocol; and
8 if it is determined that the third packet includes the second message requesting the
9 second resource, then
10 determining second information in the second message for uniquely
11 requesting the second resource,
12 determining whether the second information matches the first information in
13 the data structure, and
14 if the second information matches the first information, sending the second
15 message to the first device having the first address associated with the
16 first information.

1 36. (Previously Presented) An apparatus as recited in Claim 29, wherein:
2 a source port field in the first packet includes data indicating a first source port; and
3 the sequences of instructions which cause the processor to carry out the step of
4 sending the second packet to the second device further comprise instructions
5 which, when executed by the processor, cause the processor to carry out the
6 steps of:
7 storing in a second data structure uniquely associated with the first address
8 and the first source port a particular translated port, and
9 inserting data indicating the particular translated port into a source port field
10 of the second packet.

1 37. (Previously Presented) An apparatus as recited in Claim 29, wherein the
2 particular protocol is a network basic input and output system (NetBIOS) open protocol.

1 38. (Previously Presented) An apparatus as recited in Claim 29, wherein the one or
2 more stored sequences of instructions further comprise instructions which, when executed by
3 the processor, cause the processor to carry out the steps of:
4 if it is determined that the first packet includes the first message, then inserting in the
5 second packet a second message based on the first message; and

6 generating the second message by replacing, in a source address field, data indicating
7 the first address with data indicating the particular address of the intermediate
8 device on the second network, wherein the protocol server is a name server
9 that stores a resource name of the first resource in the second message in
10 association with an address based on data in the source address field of the
11 second message.

1 39. (Previously Presented) An apparatus as recited in Claim 29, wherein the one or
2 more stored sequences of instructions further comprise instructions which, when executed by
3 the processor, cause the processor to carry out the steps of:
4 monitoring messages associated with registering the first resource with the protocol
5 server;
6 determining whether the first resource is not registered with the protocol server; and
7 if it is determined that the first resource is not registered with the protocol server, then
8 removing from the first data structure the data indicating the first information
9 in association the first address.